exophthalmic goiter, and recognize them when we see them. No less certain, however, are many of the mental reactions that we see in pituitary types, and one of the most frequent conditions at the menopause is depression with uncertain phobias or fears. In some of these cases the disappearance of nervous phenomena can only be accounted for by the administration of glandular products—and it is no more unusual to see these patients greatly benefited than it is to see other normal reactions, such as we see in the effeminate boy with Froelich's syndrome—who will not take his own part and who does not have the proper attitude toward his fellow students—completely changed by the proper pituitary therapy. One case which I had under treatment—a married woman—would always (about ten days after her period) be wakened out of a sound sleep at night with a terrible spell of fear; she would rise from her bed and rush from her room into the open, temporarily losing control of herself. This was diagnosed under the head of so-called "Epileptic Equivalent," and while not relieved by the use of luminal, was relieved by luminal and ovarian products.

Briefly, I might call attention to three patients—two pituitary and one a combination of thyroid and gonad insufficiency. One of the pituitary patients was afraid that he was going insane and had carefully studied the matter out. Another had indefinite fears, being afraid to ride in a street car, or an elevator, or being where there were crowds of people. Both of these patients were relieved by treatment. The other, a successful wholesale man, was afraid to drive his car alone; to play golf. He would frequently go to the door of a prospective customer and be compelled to turn around and leave. He had dry skin, poor nails, constipation, and other symptoms of hypothyroidism and a definite history of loss of sexual activity.

It seems that this, and other works by Doctor Williams, are steps in the right direction.

LIPIODOL IN THE DIAGNOSIS OF CHEST DISEASE

By HOWARD E. RUGGLES, M. D., and LLOYD BRYAN, M. D., *San Francisco*

DISCUSSION *by Clain F. Gelston, San Francisco, and Harold Brunn, San Francisco.*

THE value of lipiodol in the diagnosis of inflammatory processes in the lung was first demonstrated by Sergent and Cottenot. They found that intratracheal injections of this fluid were harmless and gave beautiful casts of the bronchial tree. Other workers have extended the application of this procedure to a variety of chest conditions in adults and children.

There are two methods of injection. In one, a large curved trocar is introduced through the cricothyroid membrane under local anesthesia and the oil injected through it into the trachea. The second consists of cocainization of the larynx and the introduction of the solution into the trachea under direct observation. In our experience, the latter is the more satisfactory method. It is quickly accomplished, can be done in the office, the average patient is perfectly comfortable, there is little tendency to cough and the material is easily retained for a length of time, permitting adequate observation in several positions. In one instance, the introduction of 30 cc. of the oil was watched under the fluoroscope. With the patient upright, the bronchi of both lower lobes were completely filled before coughing began, and afterward he was watched in prone, supine and lateral positions, in an effort to outline a possible cavity in an upper lobe, without discomfort or marked cough reflex.

Laryngologists prefer to inject patients in the upright position, with the result that only the lower bronchi are visualized. The material is heavy, as it consists of 40 per cent iodine in a vegetable oil and so drops directly into the most dependent portions of the lung. Most bronchiectatic cavities and bronchial dilatations occur at the bases and are, therefore, easily outlined. Lesions in the upper lobes are filled with difficulty. If possible the patient should be so placed that the suspected area is below the level of the trachea and the injection made slowly in this position. When only small amounts of the oil are used (under 30 cc.) in a single, continuous injection, one portion of a lobe may receive it all and when once placed it does not tend to spread throughout adjacent areas, but is gradually coughed up through the bronchi. Multiple injections and the use of larger quantities tend to equalize its distribution. Thirty to forty cubic centimeters are necessary for adequate visualization in adults. It is a good plan to turn the patient from side to side, and stand him upon his head over a chair or bed in an effort to drain the lesion before attempting to fill it.

In the normal individual the fluid gives a thin coating to the larger bronchi, and in filling the smaller ones produces a diffuse, flocculent shadow which is characteristic. Dilated bronchi are obvious, and the multiple grape-like masses in small bronchiectatic cavities are easily recognized. This is particularly valuable in lesions of the left base behind the heart and diaphragm, which are rarely seen in routine chest films.

The iodine remains in the cavities for long periods. Considerable amounts have been observed several months after injection, and it is still a matter of earnest discussion as to how much direct therapeutic effect may result from this iodization. No untoward effects have been noted following any of the injections. It might be supposed that persons susceptible to iodine would develop reactions to the considerable amounts some of them swallow in the process of clearing their bronchial tracts, but so far none have been reported.

The supply of the oil has been exhausted, due to a government ban upon its importation, apparently upon the ground that it is misbranded. Further work will depend upon renewed importations or the development of a similar product by an American firm.

Although Sergent warns against the injection of tuberculous patients because of the chance of producing congestion and reactions, it would seem that careful trials of the method in selected cases might lead to the perfection of a technic which would be safe and perhaps of value in diagnosis and therapy.

135 Stockton street.

DISCUSSION

CLAIN F. GELSTON, M. D. (380 Post Street, San Francisco)—I have naturally been much interested in the use of iodinized oil in investigating the bronchial tree in children since my work with Armand-Delille in Paris, who had applied the methods of Sergent and Cottenot. The opportunities offered seem to me not to be confined entirely to those cases of gross pathology, although, naturally, these are the most spectacular, and, of course, of

a great deal of value from the standpoint of lung surgery.

Should it ever be possible, however, to procure the necessary subjects, a most valuable contribution would be given to the study of the bronchial tree in the low grade chronic respiratory infections of both children and adults. In many cases these are, unquestionably, to my mind, accompanied by a certain degree of bronchiectasis, probably of the cylindrical variety. Should this investigation be possible, the work of Tallermann of St. Louis on the etiological relationship of lung fibrosis to bronchiectasis would be proven.

In the hands of the French observers, the route through the crico-thyroid membrane was found more feasible in children than the transglottic.

We are all pleased to learn recently that a substitute for lipiodol, and one equally satisfactory, is now on the market, so that these extremely important investigatory methods need not be given up.

HAROLD BRUNN, M.D. (384 Post Street, San Francisco)—I have been very much interested in the use of lipiodol in chest conditions from the time that Doctor Gelston returned from Europe with this method from the clinic of Armand-Delille.

As soon as we could obtain the lipiodol we immediately began using it in our chest cases for diagnostic purposes. At first we used the cannula method. This method is done as follows: A point over the crico-thyroid membrane is chosen and cocainized with 1 per cent novocain. A small curved cannula made for the purpose is passed through the crico-thyroid membrane into the trachea. This can be done quite painlessly. The trocar is then removed and about 5 cc. of 1 per cent of novocain is slowly injected into the trachea in order to counteract irritation. Following this, the lipiodol, warmed so that it will run more freely, is very slowly injected into the trachea.

It is well to lay the patient on the side which it is desired to inject, although both sides can be done at the same sitting very frequently. We soon found that at first we used too small an amount of lipiodol, and latterly it has been our habit to use about 10 cc. first, then to wheel the patient into the x-ray room, having everything ready to take a picture, and inject 20 cc. more, taking the picture immediately thereafter before the patient begins to cough. Some patients are much more easily controlled in this than others. In some it is quite difficult to prevent coughing at the crucial moment. This usually spreads the lipiodol as a flocculi throughout the bronchi.

Lately, through the assistance of Herbert Cohn at the San Francisco Hospital and Carson Martin at the University of California Hospital, we have been able to get wonderful pictures by having the substance dropped through the larynx after complete cocainization. We have found the greatest use of the method in our work in the diagnosis of bronchiectasis.

Before the injection it is well to have the patient empty his lungs by turning him upside down. The same holds good of lung abscesses but these are seldom visualized with the lipiodol. For some reason it seems quite difficult to get the lipiodol to enter a lung abscess cavity. We have had several cases of bronchiectasis on the left side in which the x-ray, before injection, appeared quite normal, but which came out very beautifully after the injection, showing fingerlike cavities behind the heart. In none of the cases that we have used it has there been any symptoms of iodism or any untoward result. In one of my cases in which I performed a lobectomy of the lower lobe for bronchectasis the lipiodol still remains in the other part of the lung, now a period of six months.

I consider the method practically harmless and a great help in the diagnosis of certain lung conditions.

Students Work for Education—Of the 10,000 students who are in attendance at the University of California this year, 7500 must aid themselves financially by securing work of some sort, according to Mrs. Leslie W. Ganyard, manager of the Alumni Bureau of Occupations, who says her organization expects to be called upon by 1500 or 2000 of these students for assistance in securing work to defray at least a part of their college expenses.

THE RELATIONSHIP OF METABOLIC TOXINS TO DERMATOSES

By O. V. SCHROETER, M. D., *Los Angeles*

As dermatologists, we have seemed to be much more concerned with skin pictures, with variations of skin pictures and with dermatologic symptomatology and pathology, than with the mysterious perpetrators of cutaneous injury.

We must seek out the site of toxin formation, the conditions under which toxins are formed, their intimate character, and their effect at the site of deposition.

There is a mutual interdependence of microbic nutrition and potential microbic action. The food of the host is an important factor both in controlling the kinds of bacteria that multiply in the intestinal canal and in determining the nature of the products these bacteria form while they are resident therein.

DISCUSSION *by Samuel Ayres, Los Angeles; Anstruther Davidson, Los Angeles; Harry E. Alderson, San Francisco.*

IN A RECENT paper I sketched skeletally the pathology of toxic dermatoses. I endeavored to show therein that there are different degrees of toxic action which are expressed in different degrees of pathology on the skin surface, that this toxic action finds its expression through the capillaries, and I indicated that the etiology of this condition was toxin carried in the blood stream.

It has been my effort here to seek what light we now have on the metabolic origin of these toxins, their character, their insignificance or importance with relation to the causation of the urticarias, erythemas, and purpuras. It is surprising that so little has been done in the way of clinical research into the etiology of these diseases of the skin. As dermatologists, we have seemed to be much more concerned with skin pictures, with variations of skin pictures, and with dermatologic symptomatology and pathology rather than with the mysterious perpetrators of cutaneous injury.

The study of such a problem concerns branches of the broad field of medicine rather foreign to dermatology itself. We must seek out the site of toxin formation, the conditions under which toxins are formed, their intimate character, and their effect at the site of deposition. In all this we have isolated facts, and we have hypotheses; from them we must gather such knowledge as we can, with a view to a better understanding and care of the toxic dermatoses.

Of course, I am here assuming only the area of metabolic activity in the etiology. I feel sure my assumption is well founded. The first and most logical place of introduction of intracorporeal toxins is the alimentary tract, and years before the day of bacteriology proper, scientists studied the question of alimentary toxemia. Outstanding among these is Bouchard, who made numerous experiments, in an endeavor to accurately incriminate secretions and excretions and faulty metabolism in the production of certain symptom complexes. He might be aptly called the "father of auto-intoxication." Conditions in the bowel are admittedly favorable for the production of decomposition products and for the production of pathological biological chemic substances. We might conceive the production of these to be based on faulty digestion of foods or upon the action of certain elements of the intestinal flora upon